TeleScreen as a novel internet-based tool for classifying mental disorders presented in primary care

Valorisation

This valorisation chapter elaborates on the societal value of the research, where the acquired scientific knowledge is translated into knowledge that could be used or is suitable for a broader public than the scientific community only. The chapter describes the relevance for clinical practice and elaborates on the innovative character of the findings. Next, different stakeholders for whom the results of the studies can be considered are described. Finally, we look at new activities and further dissemination of the acquired knowledge.

Relevance for clinical practice

Mental disorders are very common. In the Netherlands approximately 1.896.700 people suffer from a mental disorder per year (18%) [1]. Mental disorders are associated with high burden of disease [2], reduced quality of live, work disability and high societal costs [3-5]. Research showed that mental disorders can be missed or misinterpreted, for instance due to unfamiliarity of GPs with psychological issues or patients' feeling of shame to express complaints [6-11]. Such pitfalls can enhance the under-recognition of mental issues, which in turn could result in delay of receiving adequate care, incorrect referrals or ineffective treatment [7, 12-14]. Early assessment seems necessary to identify mental disorders at an early stage, to avoid aggravation of complaints and to make sure that patients receive the appropriate treatment. With TeleScreen extensive triage at the very start of a patient's trajectory is possible.

In 2014 the Dutch government stimulated a shift from specialized mental healthcare to primary care and general practice with the practice nurse, specialized in mental healthcare (PN). Since then, only patients with a suspicion of a mental disorder based on the DSM-IV-TR (or DSM-5) are allowed to be referred to (reimbursed) mental healthcare; that is a primary care psychologist or specialized mental healthcare worker [15]. Since then, a referral from the GP must always be accompanied with a suspected diagnosis from DSM-IV-TR (or DSM-5). The aim of the transition was to avoid expensive specialized mental healthcare; treating patients quickly and effectively and avoiding unnecessary specialized treatments. GPs play a central role in this system. GPs act as gatekeepers to (specialized) mental healthcare. However, they often feel uncertain or are unfamiliar with psychological interventions, which may result in incorrect treatment, incorrect referrals and long waiting lists [7]. TeleScreen, which was at the center of the studies presented in this thesis, is developed to support GPs in this difficult task.

Private public partnership

The collaboration between TelePsy and Maastricht University has been very fruitful. In developing and selling their applications TelePsy needs scientific research. Healthcare organisations that consider using TelePsy eDiagnostics, want proof of the validity of the system. To be credible, the validity must be investigated by an independent scientific

institute. The careful scientific analysis of the validity of the system has led to much more insight into the strengths and weaknesses of TeleScreen, which made it possible to specifically adjust the system where needed.

Maastricht University also greatly benefited from the collaboration. The main advantage, which could be felt on a daily basis, was that data collection was guaranteed. Many academic PhD trajectories are challenged by problems with data collection. The data were retrieved from ongoing tests that were routinely done. If we needed more patients in the analysis, all we had to do was wait a few more weeks. We mostly used routine care data or online questionnaires among service users, so that data could be gathered relatively easily. The burden of administration for participants, clinicians and researchers was therefore minimized; less time was needed and more patients could be included.

Another benefit from the collaboration between TelePsy and Maastricht University was the guaranteed utilisation. The system that was investigated was instantly used in routine care. GPs and (specialized) mental healthcare institutions in the Netherlands, but also in Germany, Belgium, and the United Kingdom (UK) increasingly use tools that TelePsy develops. Research served to develop the tools. This is in large contrast with healthcare innovations that are primarily and solely initiated by academia. All too often the use of the innovation stops when the scientific evaluation is completed.

TeleScreen was studied in a real patient population with treatment seeking patients, which increased the innovative character of the studies. Often, research is conducted for example after patients are recruited via internet banners or visitors that entered an online website to fill out the questionnaire [16, 17], allowing certain types of patients to be selected (e.g. the ones who are motivated or interested in eHealth). TeleScreen was examined both within general practice and within specialized mental healthcare. This is unique and increases the added value of the current research.

Stakeholders

There are different stakeholders for whom the results of the studies can be considered relevant, these are: patients, healthcare professionals, insurance companies and scientists.

Patients. Based on the findings of the evaluation study, the opinion of patients with regard to the e-tool was investigated [18]. We conclude that patients were quite satisfied with the system (e.g. mean score = 7.5). They felt understood, agreed with the results of the diagnostic assessment and there was no clear preference for a face-to-face consultation with a psychologist over the eDiagnostic system [18]. One of the advantages for patients from a societal perspective is that patients get more insight in their complaints and their treatment options at the start of a (possible) healthcare trajectory. Potentially, patients are directly sent to healthcare professionals best suited for their problem. Eventually, this may lead to more effective care and a reduction in waiting time.

Diagnostic assessment often takes several consultations, and could therefore only be done at (specialized) healthcare institutions. By introducing this online system, assessment is more easily accessible. eDiagnostics can be performed within general practice and can be completed by patients at home. There are no geographical restrictions and patients do not have to travel for the completion of the test [19]. In an early phase, patients can now know what to expect. Early assessment can avoid a harmful or ineffective treatment, for instance focusing on clinical disorders, while a treatment for a personality disorder may be necessary [20].

However, TeleScreen is not suitable for every patient. Think of patients with insufficient understanding of the Dutch language, a cognitive impairment, or severely limited reality testing capabilities [18, 21]. Also, not every patient may be comfortable with expressing their problems in writing [22]. The eDiagnostic tool is mainly developed to advice and support the healthcare professionals about their patients. The results of TeleScreen are directly sent to the healthcare professional, instead of the patients. Despite the benefits for the professional, it means that the control remains within the healthcare professional. There is no direct feedback moment for patients, so patients cannot directly use the outcomes to prepare themselves for a consultation. This may be a point of discussion or improvement of the system in future.

Healthcare professionals. TeleScreen was initially developed by TelePsy as a system for GPs and PNs, to perform diagnostics before referral to a mental healthcare institution. The idea behind the tool was to make sure that patients were directly sent to the institution best equipped for the patient's problem. After a while, also (specialized) mental healthcare institutions started to use the system, for instance for internal referral or to know what kind of patients were on their waiting lists. When patients are directly sent to the institution best equipped for the problem, waiting lists and thus aggravation of complaints or costs may be reduced or prevented. The innovation also has a practical benefit. The eDiagnostic tool is easily accessible for professionals. Within a short timeframe, the report can be accessible for professionals and patients. By using the consultation function that TelePsy offers, GPs do not need to interpret the questionnaires themselves or change their behaviour. They receive additional information about their patients, which strengthens their gatekeepers function.

Insurance companies. Insurance companies may also benefit from the conducted research and tools that TelePsy develops. When patients are directly sent to healthcare institutions best suited for the problem, waiting lists and costs may eventually be reduced. Also, due to its scalability, eMental health has the potential to reach a large audience [19]. Therapeutic face-to-face interventions are often still necessary [23], but may be more time-efficient as the therapist can build on results that are filled out in advance. Possibly the number of face-to-face sessions will be reduced, while the clinical effects are

maintained [24-26]. This may improve the cost-effectiveness of treatment and may reduce the healthcare costs.

Scientists. TeleScreen is one of the first comprehensive eDiagnostic systems, covering most axes of the DSM-IV-TR (or DSM-5), in the Netherlands or even worldwide. The careful scientific analysis of the validity of the system has led to much more insight into the strengths and weaknesses of such a system, which made it possible to specifically adjust the system where needed [21, 27]. Also, we gained knowledge when it comes to the perception and needs of psychologists with regard to blended care [28]. Dissemination within international literature has taken place because the articles have been published in peer-reviewed international journals and there was also worldwide attention for TeleScreen (see: Reuters Health [29]). This makes implementation of the innovation easier in other markets, such as the UK.

New activities and further dissemination

General Practice. TeleScreen is used by approximately 70% of GPs in the South of the Netherlands (Limburg). From 2014 onwards, the consultation has been reimbursed by healthcare insurance companies. Since the communication between patient and healthcare professional is largely offered through the online platform and via a telephone call, there are no geographical restrictions. Therefore, also GPs outside Limburg could ask consultation of TelePsy for help. For further implementation, PR and communication is important. It is important that care providers are aware of the purpose of the instrument and how it can be used in practice. This can be achieved through training. Recently, TelePsy has offered accredited training courses in the area of the DSM-5 and on TeleScreen, which can increase implementation throughout the Netherlands.

Mental healthcare. When looking at mental healthcare, several institutions in the Netherlands already use the instrument. For some institutions, special triage teams were developed, meaning that healthcare professionals interpret the instrument themselves on a daily basis. Other institutions use the instrument during an intake with the patient. The communication within an institution could potentially be improved: using the instrument at the beginning of a trajectory (triage) to decide where the patient should go to or decide who is on their waiting list seems most logical. Hereafter the same answers can be used during a follow-up intake or as part of the diagnostic process where in-depth assessment can take place. For further implementation, communication and PR is also important. A training can be followed at TelePsy, before professionals start using the instrument. In addition (free) webinars are organized to promote communication and disseminate the product.

Now, a substantial body of research was conducted based on TeleScreen among patients aged 18 years and older. However, different versions of TeleScreen can be of added value as well. Think of translation to different languages (e.g. German or English) or different

target groups, such as the TeleScreen Junior (both self-report or an informant version). Currently an informant version of TeleScreen Junior for children at ages 4 to 18 is available and a pilot study has been conducted to assess its validity (data not published). There are plans to validate both the informant version of TeleScreen Junior based on DSM-5 for the ages of 4 to 18, and the self-report version of TeleScreen for the ages of 12 to 18. An informant version of TeleScreen (adult version) would be of interest as well. This may especially be useful in the assessment of persons with limited introspective ability and limited reality testing capacities (for instance patients with autism spectrum disorders, psychotic disorders, personality disorders and bipolar disorders).

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